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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,279	09/16/2003	Joseph Khatami	400.219US01	1465

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EXAMINER	
PATEL, KAUSHIKKUMAR M	
ART UNIT	**PAPER NUMBER**
2188	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,279	KHATAMI ET AL.	
	Examiner	Art Unit	
	Kaushikkumar Patel	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14,15,17-25 and 28-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14,15,17-25 and 28-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to applicant's communication filed October 30, 2006 in response to PTO office action mailed July 28, 2006. The applicant's remarks and amendments to the claims were considered with the results that follow.

2. In response to last office action, claims 1, 10-12, 14, 17, 21, 25, 29, 32-34, 36-40, 48 and 53 have been amended. No claims have been added. Claims 13, 16 and 26-27 have been canceled. As a result, claims 1-12, 14-15, 17-25 and 28-53 remain pending in this application.

3. The rejection of claims 48-52 under 35 U.S.C. 101 have been withdrawn in response to applicant's arguments presented in remarks section of applicant's response filed on October 30, 2006.

Response to Arguments

4. Applicant's arguments with respect to claims 1-53 have been considered but they are not persuasive.

5. Applicant argues that Robinson (US 6,279,059) dose not teach reading a device ID and/or manufacturer code to configure device driver. Examiner agrees that Robinson dose not teach reading a device ID, but teaches a manufacturer code (Robinson, col. 9, lines 11-65, taught as "vendor may add commands specific to the flash memory device to be implemented by the device driver"). To complement Robinson not teaching reading device ID, Kasa (US 6,275,412) was introduced with teaching of common flash

interface (CFI) standard. Although, Kasa explicitly failed to teach reading device ID but teaches use of query mode command to read configuration information including manufacturer identification (Kasa, col. 12, lines 20-30), the CFI is well known industry standard and using CFI query command produces manufacturer ID, device ID, command ID, device timing and voltage information, device layout (geometry) and other vendor-defined information (see page 7 of document-1 published by Intel, "Designing for Upgrade to the 3 Volt Advanced+ Boot Block Flash Memory", published December 1998, and also page 4 of document-2 published by Silicon Storage Technology, "8 Mbit / 16 Mbit (X8) Multi-Purpose Flash", pub. 06/2001). Also the purpose of CFI standard is to provide vendor specific information to configure a particular type of flash memory (see document 1, page 7, sec. 2.5, "with the flash-specific information, the software may be engineered to work with different devices based on the query data'). Applicant also admits this in paragraphs 0037-0039. Thus, the query command of Kasa inherently teaches reading of device ID and manufacturing ID. The query command of Kasa also teaches querying at least one memory device limitation. Applicant further argues that Robinson teaches querying query mode memory of a flash memory, but the query mode memory is a part of flash memory and includes the data structure containing characteristics of flash memory (Robinson, col. 8, lines 36-40). Present application also teaches non-volatile registers (fig. 1, item 114, par. [0034]) to store such configuration information and newly amended claims also support such query mode memory (claim 1, "the table is not stored on the at least one memory device"). As such, the combination of Robinson and Kasa (using CFI query command) teach the limitation of reading "memory

(device) ID and/or manufacturer ID as well as all the flash-specific configuration information needed to initialize flash device (see document-1 by Intel, sec. 2.5, page 7).

Claim Objections

6. Claim 1 is objected because of following minor informality. Claim 1 recites limitation "wherein the table the table" in line 8. Please correct the limitation by deleting one of the "the table".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1- 2, 5-12,14-15, 17, 20-22, 24-25, 28-29, 32–40, 43-48 and 50 – 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robinson et al. (US 6,279,069 B1) and further in view of Kasa et al. (US 6,275,412 B1) (and Bill et al. (US 6,118,694) and Doc. -1 published by Intel, "Designing for Upgrade to the 3 Volt Advanced+ Boot Block Flash Memory", published December 1998 included as evidentiary reference).

As per claims 1, 17, 29, 40, 47 – 48 and 53 Robinson teaches:

Querying at least one memory device to discover the memory type and configuring the driver to access the at least one memory device according to the

discovered memory type (Robinson Col. 5 lines 23 – 33 The information returned from the device after a query is used to initialize the driver for the device). Robinson explicitly fails to teach reading memory ID code, but refers that the data returned by query command returns data specific to a particular flash memory vendor (column 9, lines 14-17, lines 40-54)). Kasa teaches a Common Flash Interface (CFI) query command to discover the memory type (Kasa Col. 11 lines 56 – 67). The CFI query command provides the manufacture ID, device ID and other flash-specific information. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the CFI specification as disclosed in Kasa with Robinson since it is a well known industry standard specification in the art that allows configuration information from flash memory devices to be determined from a common interface (Kasa Col. 11 lines 58 – 61). Robinson further teaches data structure stored in query mode memory containing a device specific parameters (Robinson, col. 8, line 57 – col. 9, line 10). Kasa teaches CFI query command and CFI specification. According to well-known CFI standards, CFI query command provides all the flash specific information from query structures (see document-1 by Intel, sec. 2.5, page 7). The data structure stored on query mode memory teaches the table not stored on the at least one memory device and Robinson further teaches that the parameters are modifiable (Robinson, col. 9, lines 55-65, taught as this allows vendor to add additional commands as improvements are added to the flash memory device).

With respect to claim 47, it is inherent to the base claims that the host is capable of querying the memory device.

As per claim 2, Robinson teaches:

Querying at least one memory device to discover the memory type further comprises querying at least one Flash memory device to discover the memory type (Robinson Col. 5 line 25).

As per claim 5, 22, 33, 46 and 52:

Robinson does not teach querying a common flash interface (CFI).

Kasa teaches querying a CFI to discover the memory type (Kasa Col. 11 lines 56 – 67.) It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the CFI specification as disclosed in Kasa with Robinson since it is a well known industry standard specification in the art that allows configuration information from flash memory devices to be determined from a common interface (Kasa Col. 11 lines 58 – 61.)

As per claim 6, 20, 32, 44 and 50:

Robinson does not teach querying a protection register to determine the memory type.

Kasa teaches querying a protection register to determine the memory device type (Kasa Col. 12 lines 20 – 30 and Kasa Col. 12 lines 35 – 43 Special purpose registers are a part of the CFI standard). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the CFI specification as disclosed in Kasa with Robinson since it is a well known industry standard specification in the art that allows configuration information from flash memory devices to be determined from a common interface (Kasa Col. 11 lines 58 – 61).

As per claim 7, 21, 45 and 51:

Robinson does not teach querying an addressable memory ID stored in the memory device.

Kasa teaches querying an addressable memory ID stored in the memory device (Kasa Col. 12 lines 20 – 30 Specifically, lines 25 – 26 teach a 16-bit identification as part of the CFI specification). It would have been obvious to combine these features of Kasa with Robinson for the reasons set forth above.

As per claim 8, Robinson teaches:

Querying an architecture feature of the memory device (Robinson Col. 5 lines 23 – 33).

As per claim 9 and 35, Robinson teaches:

The driver contains at least one of a low level driver, a data manager, and a file manager (Robinson Col. 5 line 31 "... a system device driver ..." col. 7, lines 33-36, col. 8, lines 44-67).

As per claims 10 and 24 Robinson teaches:

Configuring the driver to access the at least one memory device with low-level driver operation parameters and memory device command sequences to match the discovered memory type (Robinson Col. 5 lines 30 – 33, col. 7, lines 15-40. The data from the query provides the low-level driver initialization parameters, col. 7 line 66 –col. 8 line 3, fig. 4 indicates parameters).

As per claims 28 and 43 Robinson teaches:

The host is one of a processor and an external memory controller (Robinson Fig. 1 clearly shows a CPU further explained in Col. 5 lines 40 – 43 and Robinson Fig. 3 clearly shows an external type memory controller further explained in Col. 8 lines 25 – 28).

As per claim 11, Robinson and Kasa teaches method of operating memory device driver as explained with respect to claim 1 above (claim 1 is incorporated here for limitations of claim 11 that is similar in scope) and further teaches command user interface (CUI), which provides higher level interface to user for erasing, reading/writing data (Robinson col. 7, lines 22-40). Kasa teaches CFI data structure as explained with respect to claim 1 above. The CFI provides data structure that contains a command set, control interface ID and also contains common flash memory parameters to provide all the necessary information for controlling read/write/erase operations and CFI also provides extended query data structure for vendor-specific extended query tables to standardize their existing interfaces for long term compatibility (see Bill col. 1, lines 35-63). Thus, Robinson and Kasa teach data manager (claim 11) and data structures to store parameters (claim 13) (see specification par. [0030], data manager provides higher level interfacing).

As per claim 12, Robinson and Kasa teach querying memory device as explained with respect to claim 1 above (claim 1 is incorporated here for limitations of claim 12 that is similar in scope) and further teach flash translation layer drivers to convert common hard disk file system commands into flash primitive commands (Robinson col. 11, lines 16-43). The file manager (as per present application specification par. [0031])

provides functionality of hard disk file systems, thus Robinson inherently teaches file manager.

As per claim 14, Robinson teaches:

The driver contains at least one of a low level driver, a data manager, and a file manager (Robinson Col. 5 line 31 "... a system device driver ..." col. 7, lines 33-36, col. 8, lines 44-67).

As per claim 15, Robinson teaches flash translation driver to form a flash disk emulator to perform as a general-purpose data storage (data models for intended usage of flash, see specification par. [0046]). Thus Robinson teaches data model.

As per claim 16, Robinson teaches: the table is modifiable (col. 9, lines 62-65).

Claims 25 and 36-39 are also rejected under same rationales as applied to claims 11-12, 14-15 above.

9. Claims 4, 23 and 34 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Robinson et al. (US 6,279,069 B1) and Kasa et al. (US 6,275,412 B1) as applied to claims 1-2 above and further in view of U.S. Patent 6,907,496 (Langford et al).

As per claim 4, 23 and 34:

Robinson and Kasa fail to teach while discovering the memory type writing to an address of the memory device and reading a response from the address.

Langford teaches writing to an address of the memory device and reading a response from the memory address during query the device to discover the memory type (Langford Col. 4 lines 4 – 13. The geometry information contributes to identifying

the memory device type, which is discovered by writing to an address and reading the response). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Langford with Robinson and Kasa, since Langford provides an improved method for detecting the configuration of flash memory devices (Langford Col. 5 lines 52 – 55).

10. Claims 3, 18, 30 and 41 are rejected under **35 U.S.C. 103(a)** as being unpatentable over U.S. Patent 6,279,069 (Robinson et al) and further in view of U.S. Patent 6,970,969 (Wong et al).

11. As per claim 3, 18, 30 and 41:

Robinson does not specifically teach that the flash memory device comprises a NAND type or NOR type flash memory device.

Wong teaches both a NAND type flash and a NOR type flash (Wong Col. 8 lines 6 – 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine this feature of Wong with Robinson since NAND and NOR flash type memories are both well known in the art to those of ordinary skill as Wong discloses (Wong Col. 8 lines 6 – 7).

12. Claims 19, 31, 42 and 49 are rejected under **35 U.S.C. 103(a)** as being unpatentable over U.S. Patent 6,279, 069 (Robinson et al) and further in view of U.S. Patent 6,650,366 (Parulski et al) and U.S. Patent 6,987,927 (Battaglia et al).

As per claims 19, 31, 42 and 49:

Robinson does not teach using a PCMCIA-ATA, a Compact Flash (CF), a USB Flash, Memorystick, and a multimedia card (MMC) compatible interface.

Battaglia teaches using a Memorystick interface and a Multimedia card interface (Battaglia Col. 16 lines 4 – 11) and a USB interface (Col. 15 lines 2 – 6). The interfaces are used with flash memory devices (Battaglia Abstract).

Parulski teaches using a PCMCIA-ATA interface (Col. 4 lines 30 – 35).

It would have been obvious to combine these features of Parulski and Battaglia to Robinson since the interfaces set forth in Parulski provide a removable non-volatile storage device (Parulski Col. 4 lines 30 – 34) and the features of Battaglia provide a wide range of memory interface types (Battaglia Col. 16 lines 4 – 7).

13. Claims 1-2, 4, 6-7, 17, 20, 21, 23, 29, 32, 34, 40, 44, 47, 48 and 50-51 are rejected under **35 U.S.C. 103(a)** as being unpatentable over Robinson et al. (US 6,279,069 B1) and further in view of Larsen et al. (US 6,223,290 B1).

As per claims 1, 2 and 6, Robinson teaches:

Querying at least one memory device to discover the memory type and configuring the driver to access the at least one memory device according to the discovered memory type (Robinson Col. 5 lines 23 – 33. The information returned from the device after a query is used to initialize the driver for the device). Robinson explicitly fails to teach reading memory ID code, but refers that the data returned by query command returns data specific to a particular flash memory vendor (column 9, lines 14-17). Larsen teaches a read configuration command to query protection register (claim 6)

of flash memory device (claim 2), which outputs the manufacturer/device ID and protection register parameters (col. 6, lines 10-21). It would have been obvious to one having ordinary skill in the art at the time of the invention to combine read query configuration command as taught by Larsen with Robinson, because the protection register provides protection against fraudulent alteration of the contents of the memory storage area (Larsen col. 3, lines 20-50).

As per claim 4, Larsen teaches writing to an address (col. 6, lines 22-23).

As per claim 7, Larsen teaches addressable memory ID (col. 6, lines 25-30, fig. 6).

Claims 17, 20, 21, 23, 29, 32, 34, 40, 44, 47, 48 and 50-51 are also rejected under same rationales as applied to claims 1-2, 4 and 6-7 above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on 571-272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kaushikkumar Patel
Examiner
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1-12-07